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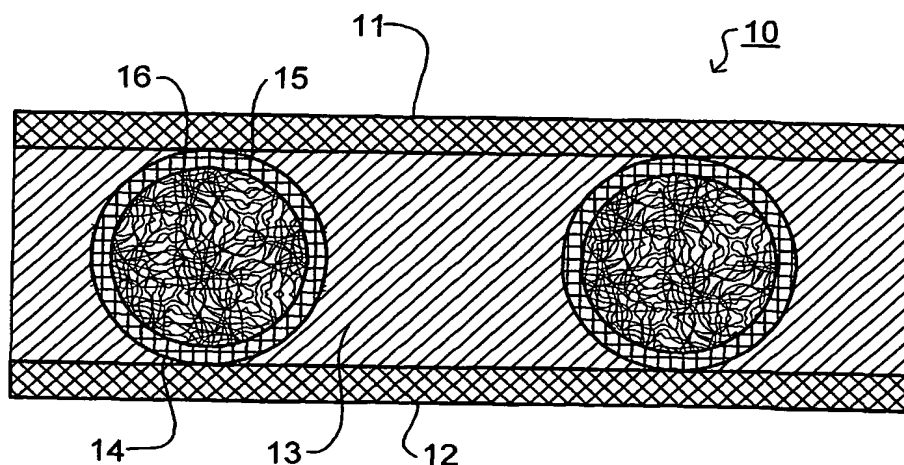
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(54) Title: **STRUCTURAL SANDWICH PLATE MEMBERS**



(57) Abstract: A structural sandwich plate member comprises first and second outer plates and a core of plastics or polymer material. A plurality of lightweight forms are disposed between the outer plates so that the core material forms ribs extending in two substantially orthogonal directions. The lightweight forms are formed of a fire resistant insulating material, such as mineral wool, preferably surrounded by a barrier to prevent the insulating material being soaked by the liquid form of the plastics or polymer material during injection of the core. The barrier may take the form of a hollow tube in which the insulating material is placed or a coating applied by dipping or spraying or a sheet material such as metal foil, felt, mineral cloth, etc..

WO 2004/082928 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/035266 A1 (KENNEDY STEPHEN J) 1 November 2001 (2001-11-01) paragraphs '0081!', '0084!', '0088!; claims 1-4,10,15,86,88,90; figures 15-17	1-3,10
X	WO 01/32414 A (INTELLIGENT ENGINEERING BAHAMA ; KENNEDY STEPHEN (CA); LEEMING JOHN GE) 10 May 2001 (2001-05-10) cited in the application page 7, lines 9,10 - page 8, lines 15,16; claims 1-3,6,13,15,30; figures 1,3,4	1-3,10
P,X	WO 03/080330 A (BASF AG ; DROEGE THOMAS (DE); BOOS JUERGEN (DE); KNOBLAUCH GEORG (DE);) 2 October 2003 (2003-10-02) page 18, paragraph 2; claims 1-7	1,2,10
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INTERNATIONAL SEARCH REPORT

ational Application No

/GB2004/001003

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 39 38 169 A (DEMUTH MICHAEL) 23 May 1991 (1991-05-23) column 2, lines 36-47 - column 3, lines 12,13; claims 1,4,5,7; figure 1 -----	1, 3, 5, 6
A	GB 2 348 217 A (MSS CLEAN TECHNOLOGY LIMITED) 27 September 2000 (2000-09-27) page 7, paragraphs 3,4; claims 1-4,6; figure 4 -----	1
A	US 6 412 243 B1 (SUTELAN FRANKLIN S) 2 July 2002 (2002-07-02) paragraphs '0019! - '0023!, '0063!; claims 5,7; figure 1 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB2004/001003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2001035266 A1	01-11-2001	US 6706406 B1	16-03-2004
		US 5778813 A	14-07-1998
		WO 0132414 A2	10-05-2001
		GB 2355957 A , B	09-05-2001
		HK 1033297 A1	03-10-2003
		US 2002187320 A1	12-12-2002
		AU 731893 B2	05-04-2001
		AU 4720497 A	03-06-1998
		BG 103394 A	31-01-2000
		BR 9713504 A	29-02-2000
		CA 2271731 A1	22-05-1998
		EE 9900192 A	15-12-1999
		EP 0938410 A1	01-09-1999
		WO 9821029 A1	22-05-1998
		ID 22728 A	09-12-1999
		KR 2000053202 A	25-08-2000
		NO 992318 A	13-07-1999
		PL 333359 A1	06-12-1999
		TR 9901694 T2	21-03-2000
		US 6050208 A	18-04-2000
WO 0132414 A	10-05-2001	GB 2355957 A , B	09-05-2001
		GB 2367526 A	10-04-2002
		US 6706406 B1	16-03-2004
		AT 243620 T	15-07-2003
		AU 1156701 A	14-05-2001
		BG 64192 B1	30-04-2004
		BG 106651 A	31-10-2002
		BR 0015339 A	23-07-2002
		CA 2389692 A1	10-05-2001
		CN 1387473 T	25-12-2002
		CZ 20021425 A3	12-02-2003
		DE 60003585 D1	31-07-2003
		DE 60003585 T2	13-05-2004
		DK 1246722 T3	13-10-2003
		EE 200200244 A	16-06-2003
		EP 1246722 A2	09-10-2002
		ES 2200960 T3	16-03-2004
		WO 0132414 A2	10-05-2001
		HK 1033297 A1	03-10-2003
		HK 1046386 A1	19-09-2003
		HU 0203576 A2	28-03-2003
		JP 2003512950 T	08-04-2003
		NO 20022135 A	06-05-2002
		NZ 518423 A	30-05-2003
		PL 354655 A1	09-02-2004
		PT 1246722 T	28-11-2003
		SK 5852002 A3	06-08-2002
		TW 561098 B	11-11-2003
		US 2004105960 A1	03-06-2004
		ZA 200203044 A	17-04-2003
		AU 8424001 A	15-04-2002
		BG 107696 A	28-11-2003
		CA 2424154 A1	11-04-2002
		CN 1478168 T	25-02-2004
		CZ 20030925 A3	15-10-2003
		EE 200300130 A	16-06-2003
		EG 22783 A	31-08-2003

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

/GB2004/001003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0132414	A		EP 1322818 A1	02-07-2003
			WO 0229160 A1	11-04-2002
			HU 0303493 A2	28-01-2004
			NO 20031500 A	02-06-2003
			SK 3992003 A3	08-06-2004
			TW 512192 B	01-12-2002
			US 2002187320 A1	12-12-2002
			US 2004055249 A1	25-03-2004
			US 2001035266 A1	01-11-2001
WO 03080330	A	02-10-2003	DE 10213753 A1	16-10-2003
			WO 03080330 A1	02-10-2003
DE 3938169	A	23-05-1991	DE 3938169 A1	23-05-1991
GB 2348217	A	27-09-2000	NONE	
US 6412243	B1	02-07-2002	US 6205728 B1	27-03-2001